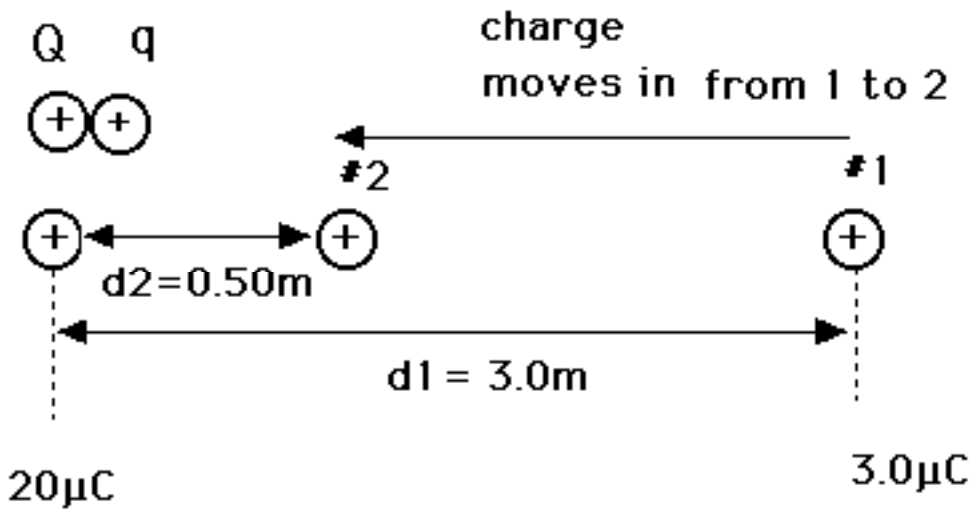


**Example 9.** Find the work done to move a charge ( $q$ ) from position #1 to #2 under the influence of the field of charge  $Q$ . (0.90 J)



$$W = \Delta E_p = \frac{kQq}{r_2} - \frac{kQq}{r_1} = kQq \left[ \frac{1}{r_2} - \frac{1}{r_1} \right]$$

$$= (9 \times 10^9)(20 \times 10^{-6})(3 \times 10^{-6}) \left[ \frac{1}{0.5} - \frac{1}{3} \right]$$

$$W = 0.90 \text{ J}$$